What is claimed is:

1. A method, comprising the steps of:

calculating an average atrial rate from a plurality of sensed atrial intervals;

calculating an average ventricular rate from a plurality of sensed ventricular intervals;

if the average ventricle rate is greater than the average atrial rate by at least a bias factor for a duration time interval and the heart is experiencing a ventricular rate above a lower-rate threshold, then applying ventricular tachycardia therapy to the heart.

2. The method of claim 1, further including the step of:

if the average ventricle rate is not greater than the average atrial rate by at least a bias factor for a duration time interval and the heart is experiencing a ventricular rate above a lower-rate threshold, then determining a state of stability of the ventricular intervals; and

if the ventricular rate is unstable for a sustained rate duration time period exceeding the duration time interval and the heart is experiencing an atrial fibrillation, applying ventricular tachycardia therapy after the sustained rate duration time period;

if the ventricular rate is stable and the heart is experiencing an atrial fibrillation, applying ventricular tachycardia therapy;

if the ventricular rate is unstable for a sustained rate duration time period exceeding the duration time interval and the heart is not experiencing an atrial fibrillation, applying ventricular tachycardia therapy; and

if the ventricular rate becomes stable during a sustained rate duration time period and an atrial fibrillation terminates during the sustained rate duration time period; delivering ventricular tachycardia therapy.

3. The method of claim 2, where the step of determining a state of stability of the ventricular intervals further includes the steps of:

calculating a ventricular interval difference from a series of individual ventricular intervals sensed within the plurality of ventricular intervals;

calculating an average ventricular interval difference from a series of individual ventricular intervals sensed within the plurality of ventricular intervals;

determining a variance value, VAR(n), for the sensed ventricular intervals by subtracting a current ventricular interval from a previous ventricular interval and taking an absolute value;

providing an initial ventricular interval variance value, VAR_{SEED}, by first determining the average variance of four ventricular interval pairs immediately before the start of duration time interval

calculating a new average ventricular interval variance after the start of the duration timer from VAR_{SEED} * Kvar + VAR(5) * (1-Kvar), where Kvar is equal to 0.875 and VAR(5) is the ventricular interval pair following the start of the duration time interval;

calculating a subsequent average ventricular interval variance, VAR_{avg}(NEW), after VAR(5) using a weighted average formula: $VAR_{avg}(NEW) = VAR_{avg}(NEW-1) * Kvar + VAR(n) * (1-Kvar)$, where Kvar = 0.875 and n is a current interval number;

updating the average ventricular interval variance throughout the cardiac episode;

comparing the average ventricular interval variance to a programmed stability threshold value, where:

if the average ventricular interval variance is equal to or greater than the a programmed stability threshold value, the ventricular interval rate is unstable; and

if the average ventricular interval variance is less than the a programmed stability threshold value, the ventricular interval rate is stable.

4. The method of claim 1, where the method further includes the steps of:

if the ventricular rate has an onset rate below the programmed onset rate value, inhibiting applying ventricular tachycardia therapy during the sustained rate duration time period.

5. The method of claim 4, where the onset rate is determined by:

calculating a baseline average ventricular rate value from four of six ventricular intervals prior to a pivot point; and

comparing the baseline average to the pivot point interval rate and each of a series of three ventricular intervals following the pivot point; and

if the difference between the baseline average and at least three of any of the series of three ventricular intervals following the pivot point and/or the pivot point is greater than or equal to the onset rate value, then determining that the onset is sudden; and

if fewer than three of any of the series of three ventricular intervals following the pivot point and/or the pivot point are greater than the programmed onset rate value, then determining that the onset is gradual.

6. The method of claim 1, where the average atrial rate is calculated using a first set of atrial intervals, and the method further comprises the step of:

identifying an atrial fibrillation after the expiration of the duration time interval when more than a predetermined majority number of the first set of atrial intervals are shorter than an atrial fibrillation interval rate threshold value, and when

more than a predetermined quorum number of subsequent sets of atrial intervals remain shorter than the atrial fibrillation interval threshold.

7. The method of claim 6, where the first set of atrial intervals consists of ten consecutive atrial intervals measured prior to the expiration of the duration time interval, the predetermined majority number is six of the first set of atrial intervals, and the predetermined quorum number is four of each of the subsequent sets of atrial intervals.

8. The method of claim 6, further comprising the step of:

delivering ventricular tachycardia therapy if the atrial rate is not classified as atrial fibrillation and the rapid ventricular rate onset was sudden.

9. The method of claim 1, where the step of applying ventricular tachycardia therapy includes the steps of:

defining at least one rate zone that categorizes the ventricular intervals, and

delivering ventricular tachycardia therapy in a manner based on the rate zone in which a first set of ventricular intervals is categorized.

10. The method of claim 9, where the steps of applying ventricular tachycardia therapy includes the step of satisfying the rate zone by having between sixty five and ninety five percent of a first set of ventricular intervals fall within a single rate zone, and remaining satisfied within the single rate zone by having at least forty five percent of subsequent sets of ventricular intervals fall within the single rate zone.

11. The method of claim 10, where the step of satisfying a rate zone further includes the step of starting the duration time interval once a rate zone is satisfied, and at the expiration of the duration time interval:

if the rate zone is defined as a ventricular fibrillation then delivering ventricular fibrillation therapy, and

if the rate zone is defined as either a rapid ventricular tachycardia or a ventricular tachycardia starting the duration time period, at the expiration of which delivering ventricular tachycardia therapy to the ventricles of the heart.

12. The method of claim 11, where the step of starting the duration time interval further includes the step of resetting the duration time interval to zero if the rate zone fails to remain satisfied within the duration time interval.

13. A implantable cardioverter-defibrillator comprising:

an atrial catheter having at least one atrial sensing and pacing electrode;

a ventricular catheter having at least one ventricular sensing and pacing electrode, and at least one ventricular defibrillation coil electrode; and

electronic control circuitry housed within the implantable cardioverter-defibrillator and coupled to the atrial catheter and the ventricular catheter for sensing atrial and ventricular cardiac signals, determining atrial intervals and ventricular intervals from the sensed atrial and ventricular cardiac signals, and calculating an average atrial rate from the atrial intervals and an average ventricular rate from the ventricular intervals, so that:

if an average ventricle rate is greater than an average atrial rate by at least a bias factor for a duration time interval and the heart is experiencing a ventricular rate above a lower-rate threshold, then applying ventricular tachycardia therapy to the heart.

14. The implantable cardioverter-defibrillator of claim 13, where the electronic control circuitry further determines the atrial intervals and the ventricular intervals from the sensed atrial and ventricular cardiac signals, and calculates the average atrial

rate from the atrial intervals and an average ventricular rate from the ventricular intervals, so that:

if the average ventricle rate is not greater than the average atrial rate by at least a bias factor for a duration time interval and the heart is experiencing a ventricular rate above a lower-rate threshold, then the electronic control circuitry determines a state of stability of the ventricular intervals; and

if the ventricular rate is unstable for a sustained rate duration time period exceeding the duration time interval and the heart is experiencing an atrial fibrillation, applying ventricular tachycardia therapy after the sustained rate duration time period;

if the ventricular rate is stable and the heart is experiencing an atrial fibrillation, applying ventricular tachycardia therapy;

if the ventricular rate is unstable for a sustained rate duration time period exceeding the duration time interval and the heart is not experiencing an atrial fibrillation, applying ventricular tachycardia therapy; and

if the ventricular rate becomes stable during a sustained rate duration time period or an atrial fibrillation terminates during the sustained rate duration time period; delivering ventricular tachycardia therapy.

15. The implantable cardioverter-defibrillator of claim 14, where the electronic control circuitry in determining the state of stability of the ventricular intervals:

calculates a ventricular interval difference from a series of individual ventricular intervals sensed within the plurality of ventricular intervals;

calculates an average ventricular interval difference from a series of individual ventricular intervals sensed within the plurality of ventricular intervals;

determines a variance value, VAR(n), for the sensed ventricular intervals by subtracting a current ventricular interval from a previous ventricular interval and taking an absolute value;

provides an initial ventricular interval variance value, VAR_{SEED}, by first determining the average variance of four ventricular interval pairs immediately before the start of duration time interval;

calculates a new average ventricular interval variance after the start of the duration timer from VAR_{SEED} * Kvar + VAR(5) * (1-Kvar), where Kvar is equal to 0.875 and VAR(5) is the ventricular interval pair following the start of the duration time interval;

calculates a subsequent average ventricular interval variance, VAR_{avg}(NEW), after VAR(5) using a weighted average formula: $VAR_{avg}(NEW) = VAR_{avg}(NEW-1) * Kvar + VAR(n) * (1-Kvar)$, where Kvar = 0.875 and n is a current interval number;

updates the average ventricular interval variance throughout the cardiac episode;

compares the average ventricular interval variance to a programmed stability threshold value, where:

if the average ventricular interval variance is equal to or greater than the a programmed stability threshold value, the ventricular interval rate is unstable; and

if the average ventricular interval variance is less than the a programmed stability threshold value, the ventricular interval rate is stable.

16. The implantable cardioverter-defibrillator of claim 13, where the electronic control circuitry inhibits applying ventricular tachycardia therapy during the sustained

rate duration time period if the ventricular rate has an onset rate below the programmed onset rate value.

17. The implantable cardioverter-defibrillator of claim 16, where the electronic control circuitry calculates a baseline average ventricular rate value from four of six ventricular intervals prior to a pivot point; and compares the baseline average to the pivot point interval rate and each of a series of three ventricular intervals following the pivot point; and

determines that the onset is sudden if the difference between the baseline average and at least three of any of the series of three ventricular intervals following the pivot point and/or the pivot point is greater than or equal to the onset rate value; and

determines that the onset is gradual if fewer than three of any of the series of three ventricular intervals following the pivot point and/or the pivot point are greater than the programmed onset rate value.

18. The implantable cardioverter-defibrillator of claim 13, where the electronic control circuitry calculates the average atrial rate using a first set of atrial intervals, and identifies an atrial fibrillation after the expiration of the duration time interval when more than a predetermined majority number of the first set of atrial intervals are shorter than an atrial fibrillation interval rate threshold value, and when more than a predetermined quorum number of subsequent sets of atrial intervals remain shorter than the atrial fibrillation interval threshold.

19. The implantable cardioverter-defibrillator of claim 18, where the first set of atrial intervals consists of ten consecutive atrial intervals measured prior to the expiration of the duration time interval, the predetermined majority number is six of

the first set of atrial intervals, and the predetermined quorum number is four of each of the subsequent sets of atrial intervals.

20. The implantable cardioverter-defibrillator of claim 18, where the electronic control circuitry delivers ventricular tachycardia therapy if the atrial rate is not classified as atrial fibrillation and the rapid ventricular rate onset was sudden.

21. The implantable cardioverter-defibrillator of claim 13, where the electronic control circuitry has at least one rate zone that categorizes the ventricular intervals and delivers ventricular tachycardia therapy in a manner based on the rate zone in which a first set of ventricular intervals is categorized.

22. The implantable cardioverter-defibrillator of claim 21, where the electronic control circuitry delivers ventricular tachycardia therapy once a rate zone has between sixty five and ninety five percent of a first set of ventricular intervals fall within a single rate zone, and remains satisfied within the single rate zone by having at least forty five percent of subsequent sets of ventricular intervals fall within the single rate zone.

23. The implantable cardioverter-defibrillator of claim 22, where the electronic control circuitry starts the duration time interval once a rate zone is satisfied, and at the expiration of the duration time interval:

if the rate zone is defined as a ventricular fibrillation then delivering ventricular fibrillation therapy, and

if the rate zone is defined as either a rapid ventricular tachycardia or a ventricular tachycardia starting the sustained rate duration time period, at the expiration of which delivering ventricular tachycardia therapy to the ventricles of the heart.

24. The implantable cardioverter-defibrillator of claim 23, where the electronic control circuitry resets the duration timer interval to zero if the rate zone fails to remain satisfied within the duration time interval.